Chapter 9. Meeting 9, Practices: Extending Common Physical Controllers

9.1. Announcements

- Prepare a 1 to 2 minute solo or duo improvisation with Performance C.
- Next class: bring amps and controllers
- Due on Monday: Controller/Interface/Instrument Design 1 Draft

  Bring to class and prepare to demonstrate

9.2. Quiz Review

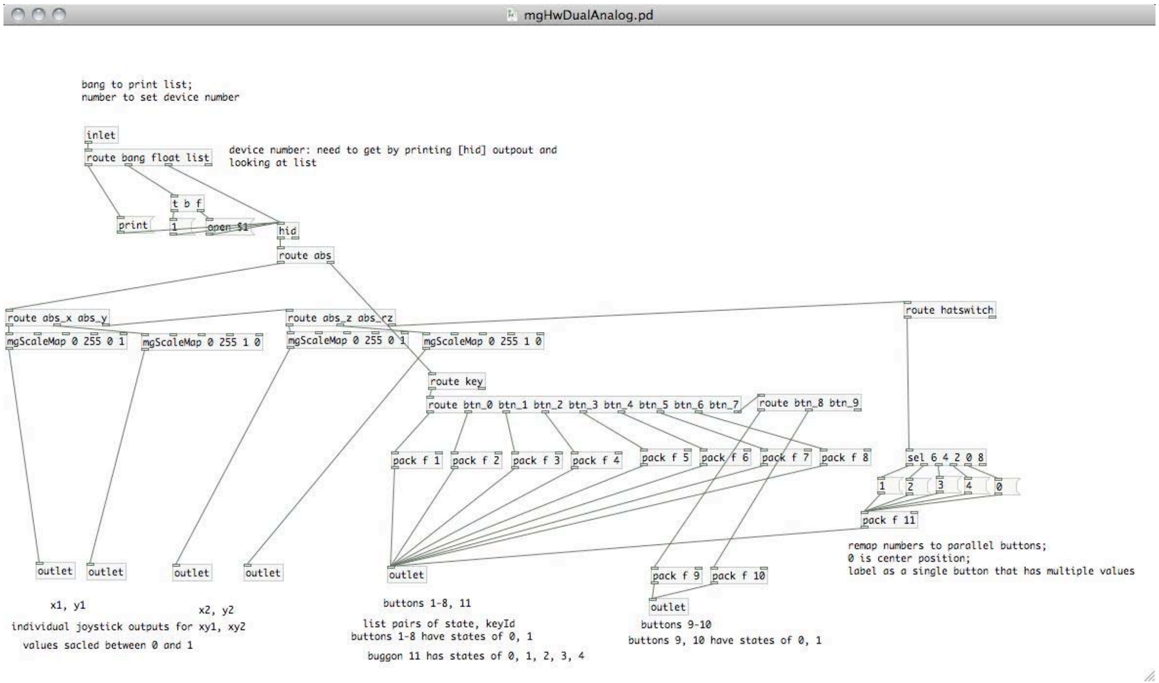
- ?

9.3. Approaching an Improvisation

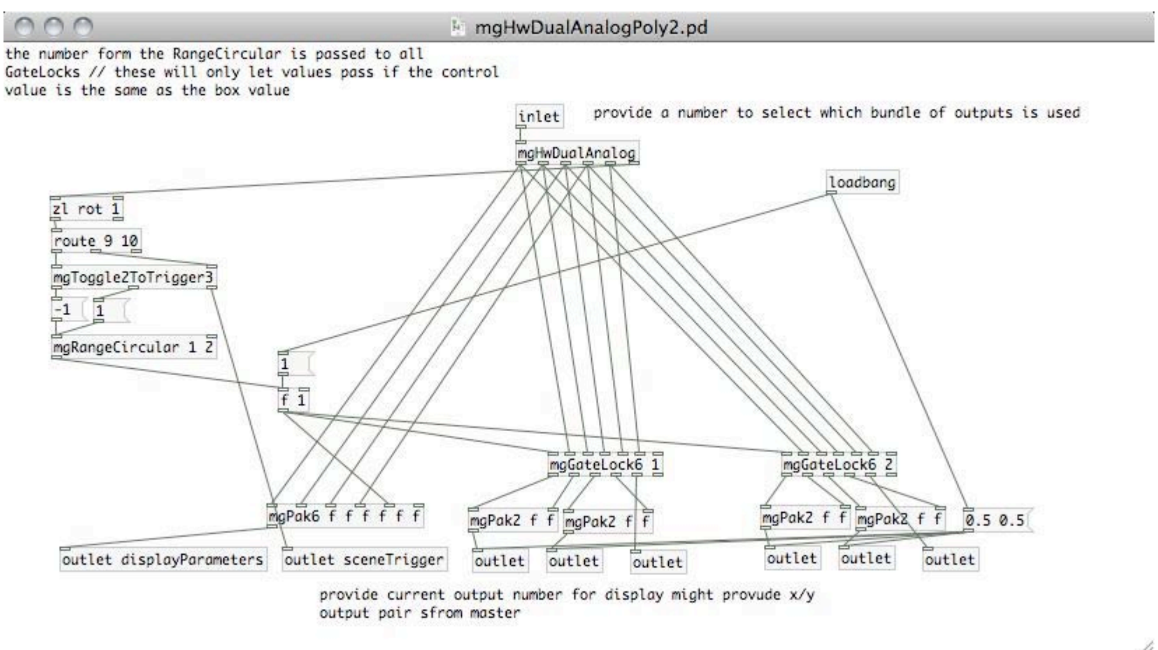
- Think in simple forms: A B, A B A
- Consider approaches to transitions to new sounds or presets; alternate between two instruments or sound sources
- Embrace silence and space
- Repetition (often) establishes meaning
- Compose short ideas that can be returned to, repeated, and elaborated

9.4. Hardware Abstraction of the Dual Analog

- [mgHwDualAnalog]



- Polymorphic control: [mgHwDualAnalogPoly2]



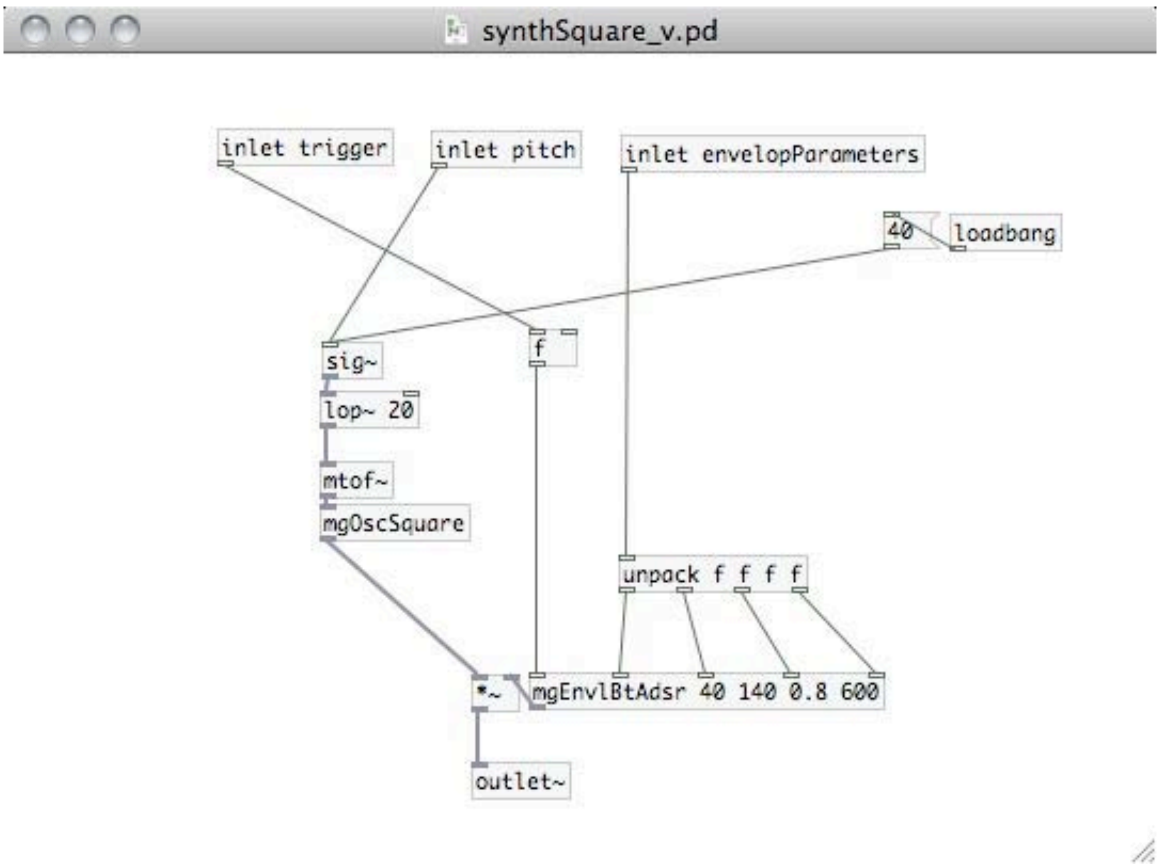
- Use the appropriate version of [mgHwDualAnalogPoly*] for your platform/controller combination

  Examples: [mgHwDualAnalogPoly2], [mgHwDualAnalogPoly2ChillStream], [mgHwDualAnalogPoly2Joystick], [mgHwDualAnalogPoly2Sixaxis]

9.5. VIPP Design Pattern: Synth Square

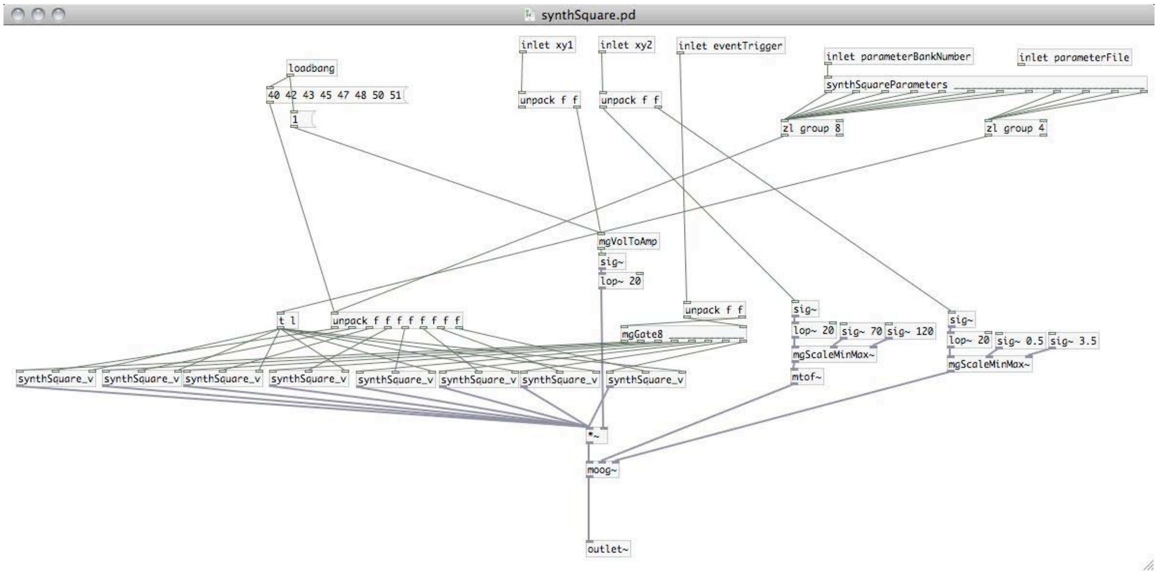
- Download: http://www.flexatone.net/transport/instrument01.zip
- Voice

  Independent of any implied hardware or control mapping; no stored parameters



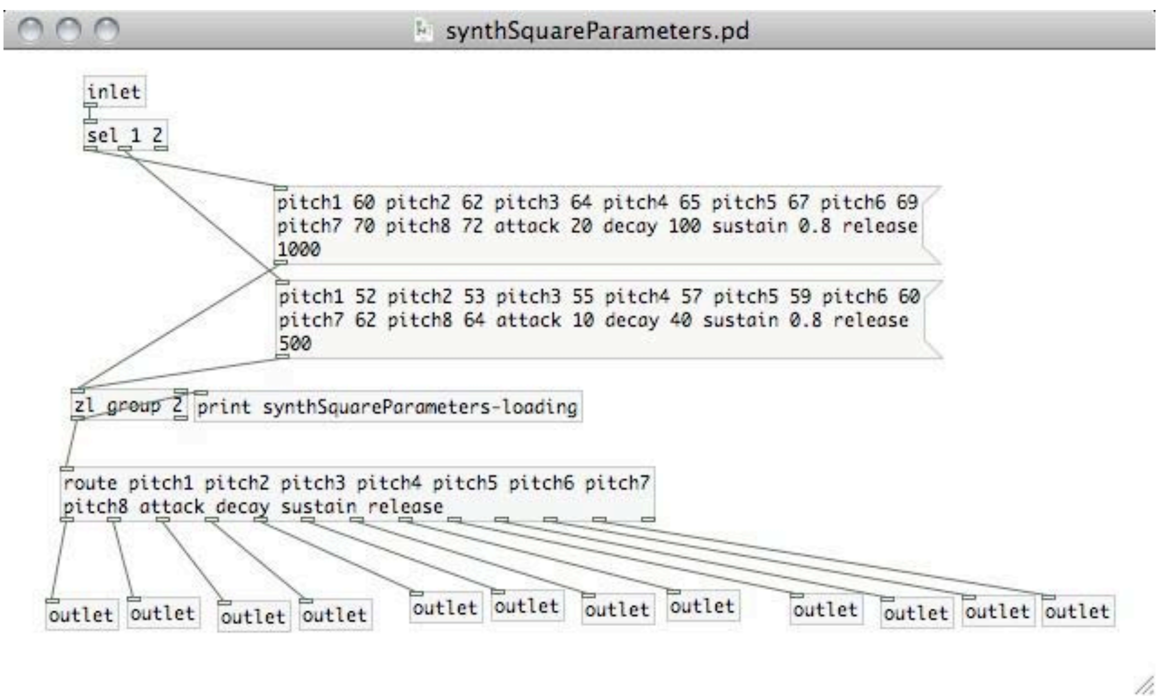
- Instrument

  Assumes basic control data types and ranges; may store parameters, may get parameters from elsewhere



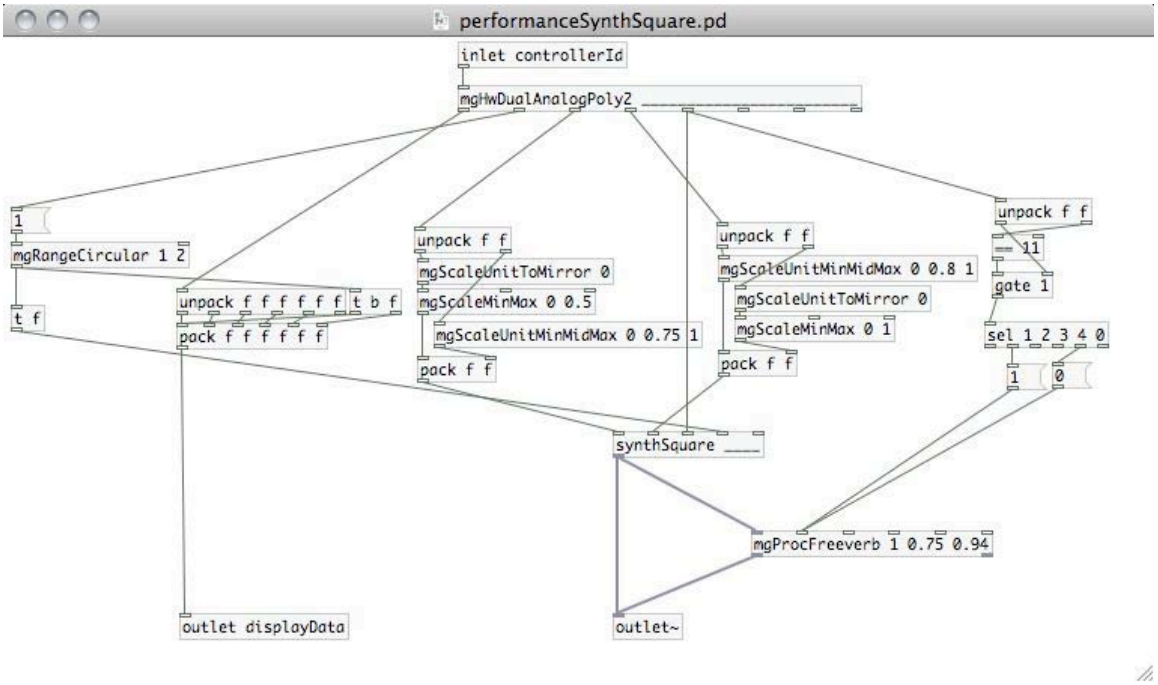
- Parameters

  Parameter storage tied directly to an instrument



- Performance

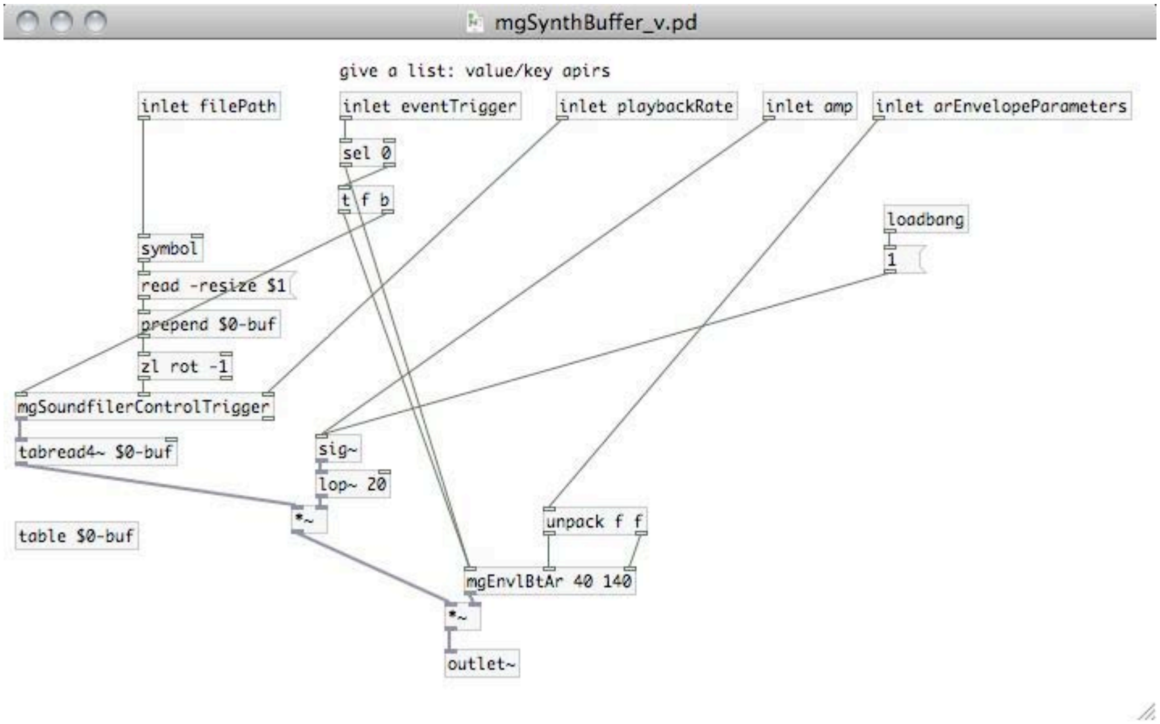
  Linking a specific hardware interface to one or more instruments; may store mapping parameters, my control distribution of parameters to instruments

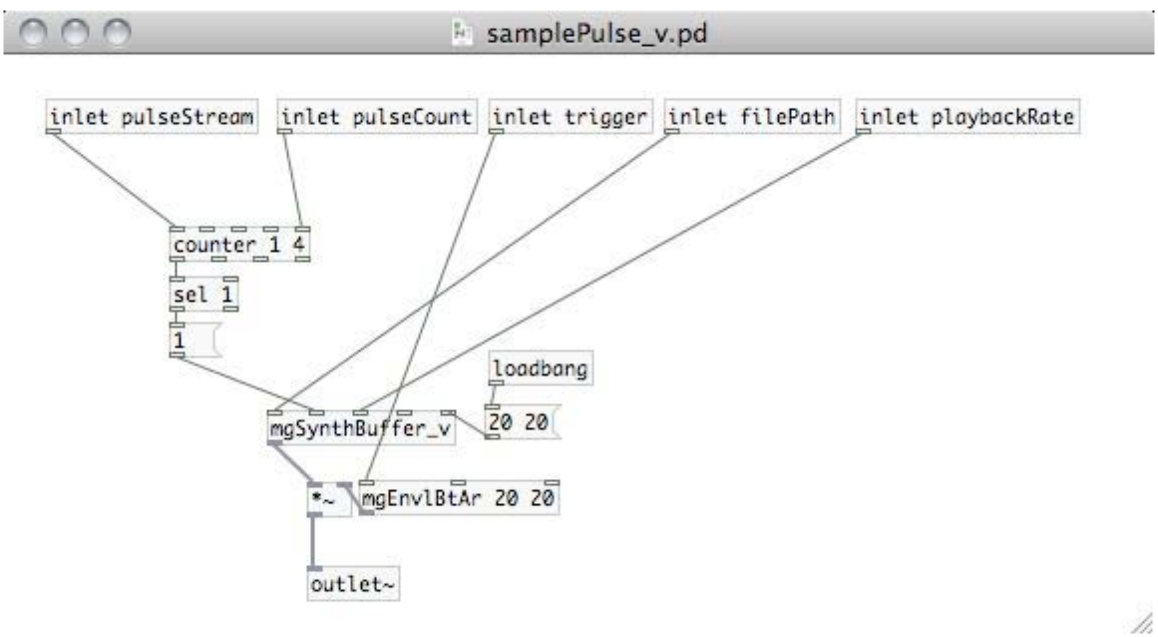


9.6. VIPP Design Pattern: Sample Pulse

- Download: http://www.flexatone.net/transport/instrument02.zip
- Voice

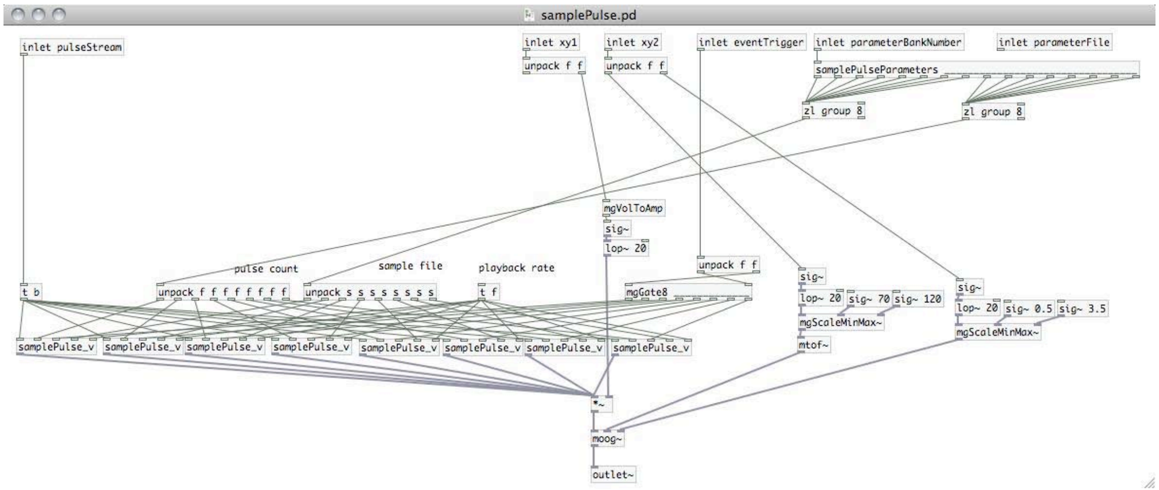
  Independent of any implied hardware or control mapping; no stored parameters





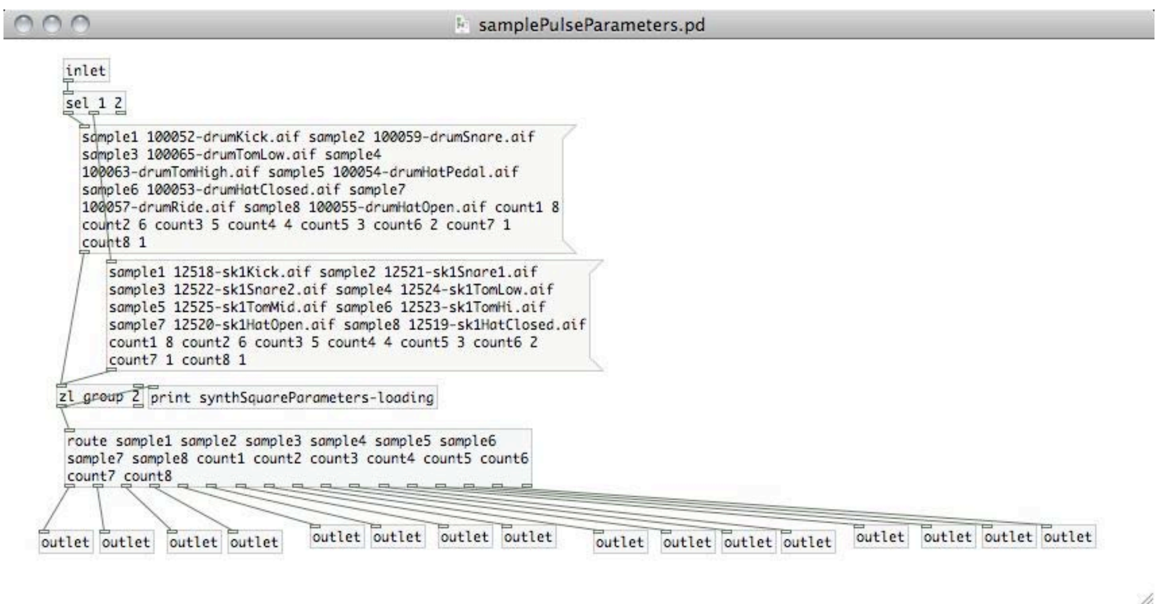
- Instrument

  Assumes basic control data types and ranges; may store parameters, may get parameters from elsewhere



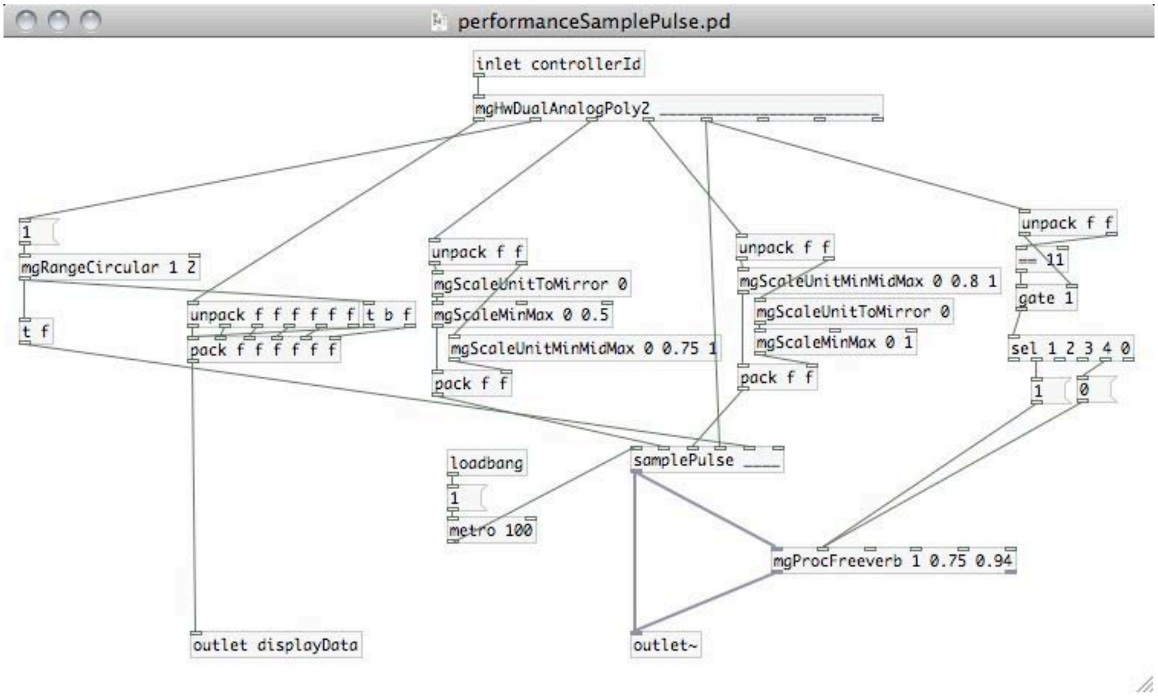
- Parameters

  Parameter storage tied directly to an instrument



- Performance

  Linking a specific hardware interface to one or more instruments; may store mapping parameters, my control distribution of parameters to instruments



9.7. Controller/Interface/Instrument Design 1 Draft

- Can be a new synthesis instrument of some sort
- Can be an extension, modification, or transformation of existing martingale instruments or sample instruments
- Need a model that makes sound with dual analog control: need not have full control

9.8. Common Controllers

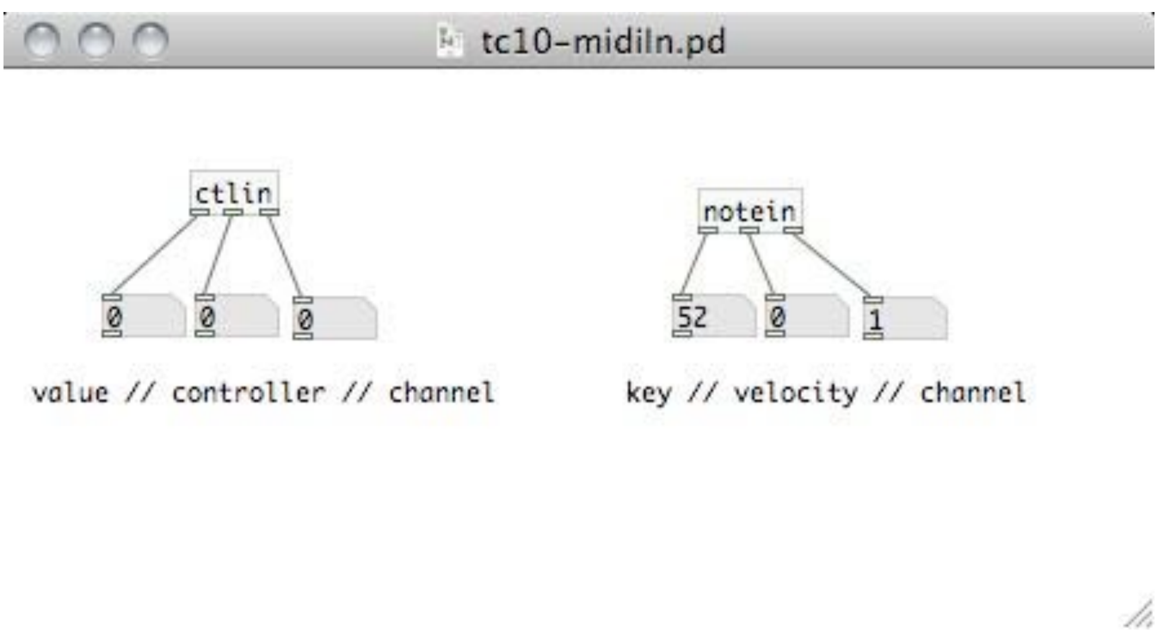
- Many common controllers transmit MIDI
- Keyboards
- Combinations of buttons (triggers and toggles) and sliders
- Touchpads, ribbons, and other continuous controllers
- Turntables

9.9. MIDI Messages

- Can be thought of as messages encoded as pairs or triples of data

- Generally, first data element is type of message, second data elements is value
- Operating system is generally responsible for representing MIDI devices to the software
- Most modern MIDI devices communicate MIDI over USB
- Pd MIDI configuration: need to select input device

- Basic objects that provide MIDI input: notein [notein] and control in [ctlin]



- Values generally in the range of 0 to 127

9.10. MIDI Keyboards

- Transmits note-on messages received from [notein]
- Korg NanoKey

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- Akai LPK 25

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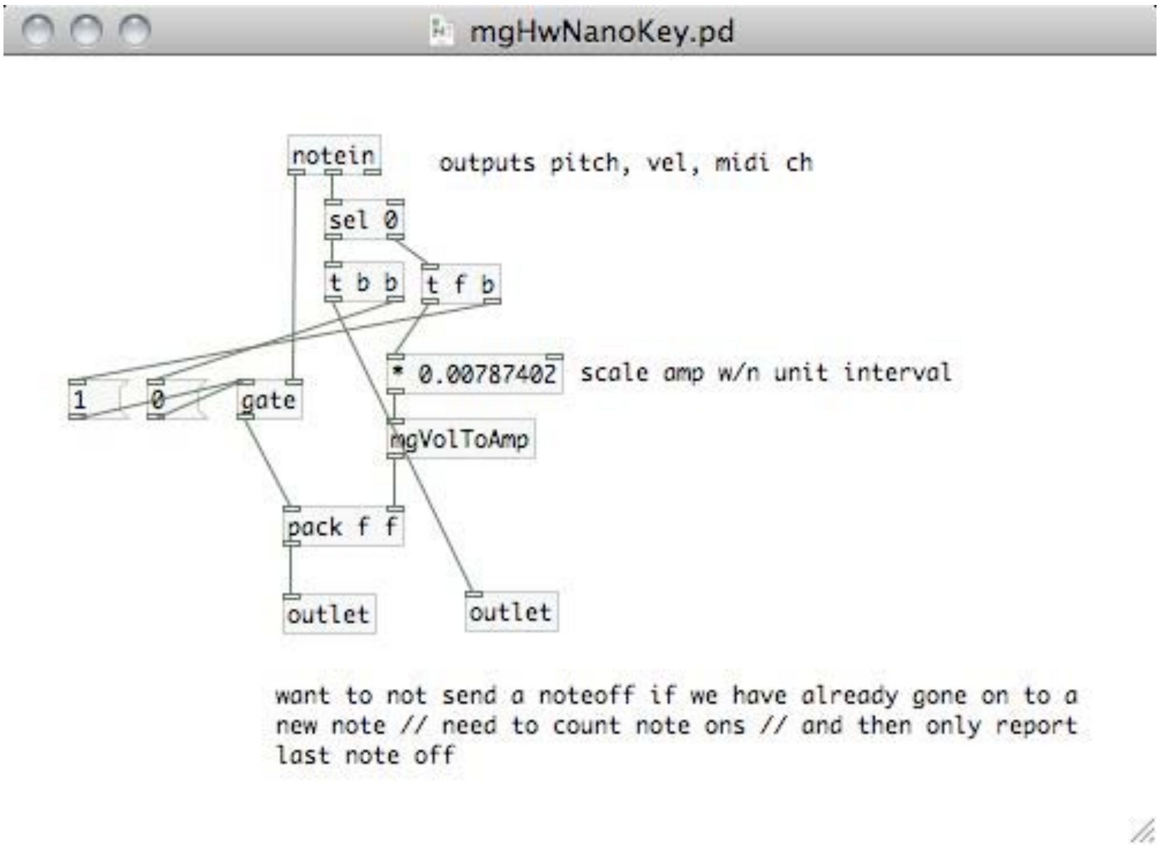
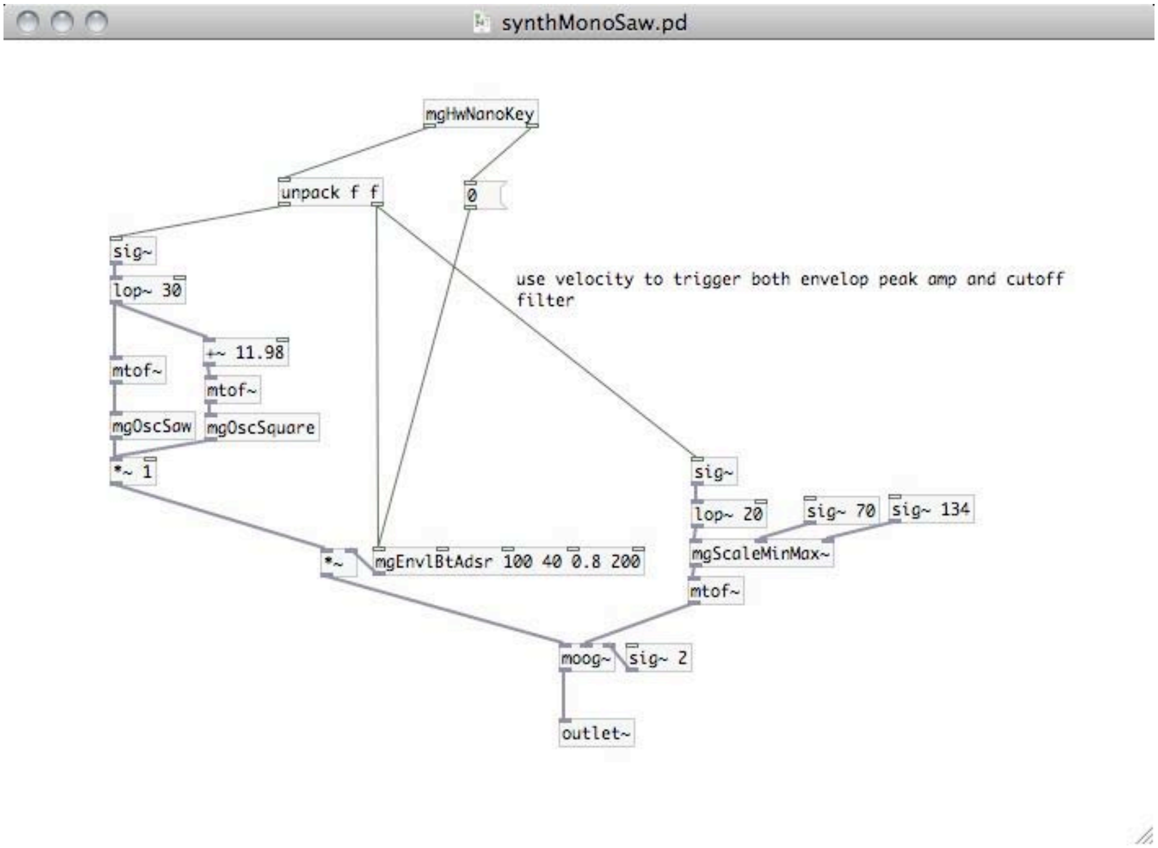
- [mgHwNanoKey]: abstraction of note-in functionality

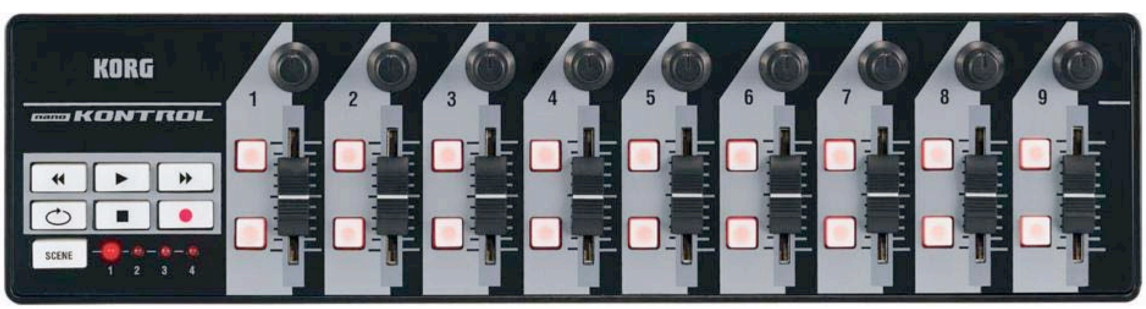


- A simple monophonic synth: martingale/instruments/nanoKey



9.11. MIDI Sliders and Knobs

- Up to 128 continuous controllers can be used to send data values between 0 and 127
- Korg NanoKontrol



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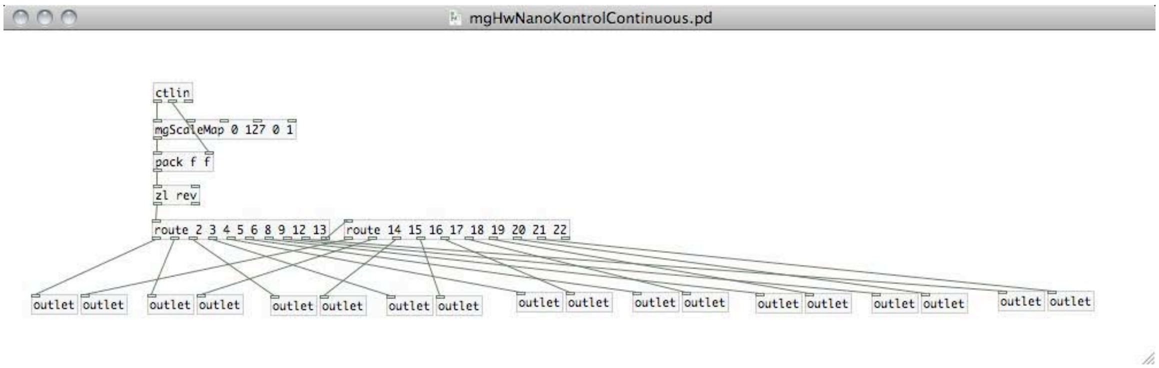
- [mgHwNanoKontrolContinuous] and [mgHwNanoKontrolDiscrete]



9.12. MIDI Pads and Touch Controls

- Pads were made popular by early drum machines and samplers such as the Linn drum and Akai MPC
- Some pad controllers provide aftertouch: dynamic control of pressure on each pad
- Korg NanoPad: provides velocity sensitive pad controls and XY touch pad

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- Akai LPD 8

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- Akai MPD 18

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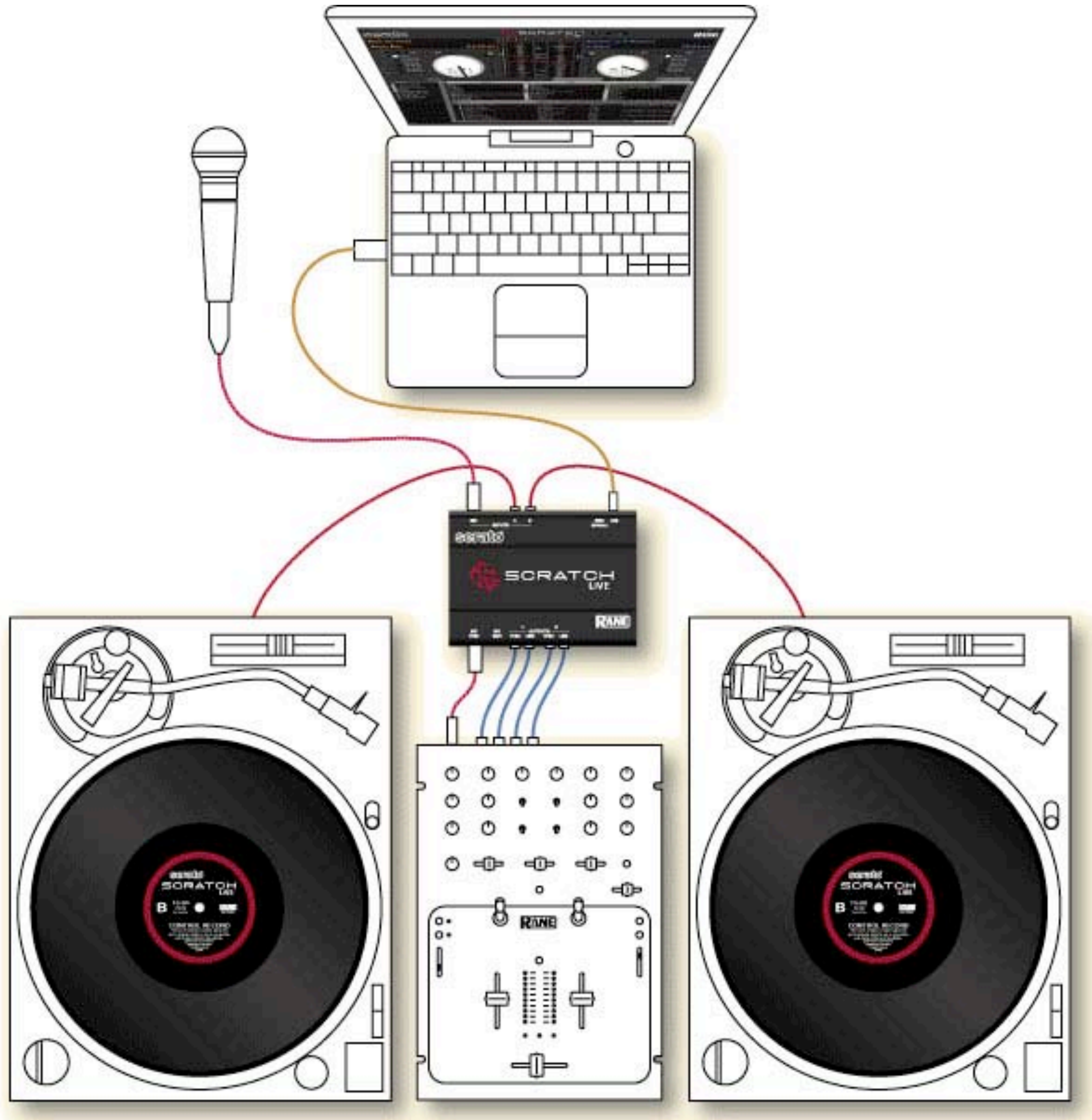
9.13. Turntables and Other Controllers

- Numerous approaches to making the turntable into a computer controller
- Rane/Serato scratch live



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9.14. Listening: D-Styles and Kid Koala

- Creative and musical extensions of the turntable
- D-Styles, "Felonius Funk," *Scratchology*, 2003
- Kid Koala, "Like irregular Chickens," *Carpal Tunnel Syndrome*, 2000

9.15. Reading: Perkis, Some Notes on My Electronic Improvisation Practices

- Perkis, T. 2009. “Some Notes on My Electronic Improvisation Practices.” In R. T. Dean, ed. *The Oxford Handbook of Computer Music.* Oxford University Press, pp. 161-166.
- Improvising and playing with acoustic musicans led Perkis to adopt a few important strategies: what are they?
- What inhibits many players from really knowing how to play their computer-music instruments? What is gained from really knowing how to play your instrument?
- Does Perkis directly create musical events, or create macro events, or something in between?
- What role does the wah-wah perform in Perkis’s setup?

9.16. Reading: Fiebrink, Wang, and Cook, Don't Forget the Laptop

- Fiebrink, R. and G. Wang, P. Cook. 2007. “Don't Forget the Laptop: Using Native Input Capabilities for Expressive Musical Control.” *Proceedings of the Conference on New Interfaces for Musical Expression* pp. 164-167.
- What are some novel control options presented in this paper?
- The authors claim that these approach offer portability: but do they?
- What are some possible applications of integrated webcams and microphones for musical control?

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